

What is claimed is:

- 1 1. In an electrically-powered device having a liquid-crystal display (LCD)
2 comprising a driver and a plurality of pixels, wherein the optical characteristics of the liquid
3 crystal associated with each pixel are defined by the selective local application of an electrical
4 charge, a method of conserving electrical power comprising the steps of:
5 receiving, in a driver of the LCD, data containing an image for display on the
6 LCD;
7 determining that power-conservation mode is appropriate according to
8 predetermined criteria;
9 analyzing the image data in a microprocessor of the LCD driver to determine the
10 pixel-charging sequence required to produce the image associated with the image data;
11 entering power-conservation mode by modifying the pixel-activation sequence to
12 reduce the number of pixels to which voltage is to be supplied; and
13 displaying on the LCD an image created by the modified pixel-activation
14 sequence.
- 1 2. The method of claim 1, wherein the predetermined criteria for entering power-
2 conservation mode is receipt of a user-entered instruction to enter power-conservation mode.
- 1 3. The method of claim 1, wherein the predetermined criteria for entering power
2 conservation mode is a low-power indication generated within the device.

1 4. The method of claim 1, wherein the predetermined criteria for entering a power
2 conservation mode is a reduce-power signal received through a communications network.

1 5. The method of claim 1, further comprising the steps of:
2 determining that leaving power-consumption mode is appropriate according to
3 predetermined criteria; and
4 leaving power consumption mode by returning to full power for all pixels.

1 6. The method of claim 1, further comprising the step of selectively alternating the
2 subset of no-power pixels.

1 7. The method of claim 1, wherein the predetermined criteria for entering power-
2 conservation mode includes an indication of the level of ambient light.

1 8. The method of claim 1, wherein the predetermined criteria for entering power
2 conservation mode includes an automatically-generated timing signal.

1 9. The method of claim 1, wherein the subset of no-power pixels is selected
2 according to the image being displayed.

1 10. An LCD system, comprising:

2 an LCD display having a plurality of pixels that are variably activated to create a
3 video image; and

4 an LCD driver for receiving power from a power supply and selectively providing
5 power to activate the display pixels;

6 power-conservation circuitry coupled to the LCD driver for selectively applying
7 pre-determined power-conservation criteria by reducing from full power the power level
8 supplied to a selected subset of pixels.

1 11. The LCD system of claim 10, wherein the power-reduction applied to a selected
2 subset of pixels causes no power to be sent to the selected pixel subset.

1 12. The system of claim 11, wherein the subset of no-power pixels is selected based
2 on the image being displayed.

1 13. An improved portable electronic device for communicating with a
2 communications network comprising:
3 a receiver for receiving information from the communications network;
4 a liquid-crystal display (LCD) comprising a plurality of pixels for displaying
5 images according to the information received from the communications network;
6 an LCD driver for receiving the received information and translating at least a
7 portion of the information into instructions for selectively activating the pixels in order to
8 produce an image, wherein the LCD driver determines if a power-conservation mode has been
9 selected and, if so, modifies the instructions accordingly.

1 14. The device of claim 13, wherein the selection of power-conservation mode is
2 done automatically.

1 15. The device of claim 14, wherein the automatic selection of power-conservation
2 mode is responsive to a low-battery indication.

1 16. The device of claim 14, wherein the automatic selection of power-conservation
2 mode is responsive to a signal received from the communications network.

1 17. The device of claim 16, wherein the signal received from the communications
2 network is generated by the network upon detecting a device transmission strength lower than a
3 pre-determined threshold.

1 18. The device of claim 13, wherein the instruction modification performed if power-
2 conservation mode has been selected includes omitting a predetermined number of pixel-
3 activations.

1 19. The device of claim 19, wherein the number of omitted pixel-activations is
2 determined as a first selected percentage of the total number of pixels to be charged during a first
3 defined portion of the pixel-activation sequence.

1 20. The device of claim 19, wherein approximately fifty percent of the pixel-
2 activations are omitted.

1 21. The device of claim 19, wherein a second selected percentage of the total number
2 of pixels to be activated determines the omitted pixel-activations in a second defined portion of
3 the pixel-activation sequence.